

10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01 v05, when the implementation is based the specific polynomial fit algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

There must not be any warning or alert messages due to various measurement concerns identified by the SAR system; for example, noise in measurements, peaks too close to scan boundary, peaks are too sharp, spatial resolution and uncertainty issues etc. The SAR system verification must also demonstrate that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR (See Annex B). When all the SAR results for each exposure condition in a frequency band and wireless mode are based on estimated 1-g SAR, the 1-g SAR for the highest SAR configuration must be determined by a zoom scan.

10.2 Fast SAR Algorithms

The approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale.

In the initial study, an approximation algorithm based on Linear fit was developed. The accuracy of the algorithm has been demonstrated across a broad frequency range (136-2450 MHz) and for both 1- and 10-g averaged SAR using a sample of 264 SAR measurements from 55 wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm are 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

In the second step, the same research group optimized the fitting algorithm to an Polynomial fit whereby the frequency validity was extended to cover the range 30-6000MHz. Details of this study can be found in the BEMS 2007 Proceedings.

Both algorithms are implemented in DASYS software.

11 Conducted Output Power

11.1 WCDMA Measurement result

Table 11.1-1: The conducted Power for WCDMA

Item	band	FDDV result			
	ARFCN	4233 (846.6MHz)	4183 (836.4MHz)	4132 (826.4MHz)	Tune up
WCDMA	\	23.88	23.98	23.95	24
HSUPA	1	22.39	22.65	22.46	23
	2	21.49	21.78	21.64	22
	3	21.25	21.55	21.45	22
	4	21.92	21.96	21.89	22
	5	22.98	22.93	22.85	23
DC-HSDPA	1	22.93	22.87	22.88	23
	2	22.90	22.95	22.89	23
	3	22.37	22.47	22.32	23
	4	22.35	22.46	22.29	23
Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)	
WCDMA	\	22.82	22.89	22.78	23
HSUPA	1	21.09	21.14	21.05	22
	2	20.58	20.69	20.42	21
	3	20.54	20.64	20.53	21
	4	20.56	20.71	20.93	21
	5	21.68	21.81	21.54	22
DC-HSDPA	1	21.72	21.83	21.71	22
	2	21.73	21.82	21.81	22
	3	21.26	21.32	21.30	22
	4	21.28	21.29	21.27	22
Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	
WCDMA	\	22.92	22.75	22.88	23
HSUPA	1	21.31	21.57	21.55	22
	2	20.35	20.67	20.65	22
	3	20.56	20.75	20.68	22
	4	20.98	20.75	20.62	22
	5	21.88	21.57	21.52	22
DC-HSDPA	1	21.86	21.78	21.82	22
	2	21.88	21.80	21.78	22
	3	21.41	21.28	21.25	22
	4	21.42	21.32	21.20	22

11.3 LTE Measurement result

Table 11.3-1: Tune up for LTE

Band	Tune up (dBm)
Band 2	24
Band 4	24
Band 5	24
Band 12	24
Band 14	23

Table 11.3-2: Maximum Power Reduction (MPR) for LTE

Modulation	Channel bandwidth / Transmission bandwidth configuration [RB]						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	2

Table 11.3-3: The conducted Power for LTE

Band 2								
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Max. Target Power (dBm)	QPSK		16QAM		
	RB offset (Start RB)			Actual output power (dBm)	MPR	Actual output power (dBm)	MPR	
1.4 MHz	1RB High (5)	1909.3	24	23.48	0	22.37	1	
		1880	24	23.50	0	22.30	1	
		1850.7	24	23.36	0	22.68	1	
	1RB Middle (3)	1909.3	24	23.57	0	22.62	1	
		1880	24	23.26	0	22.29	1	
		1850.7	24	23.37	0	22.65	1	
	1RB Low (0)	1909.3	24	23.45	0	22.42	1	
		1880	24	23.38	0	22.13	1	
		1850.7	24	23.42	0	22.00	1	
	3RB High (3)	1909.3	24	23.39	0	22.49	1	
		1880	24	23.40	0	22.30	1	
		1850.7	24	23.44	0	22.31	1	
	3RB Middle (1)	1909.3	24	23.32	0	22.85	1	
		1880	24	23.68	0	22.23	1	
		1850.7	24	23.43	0	22.37	1	
	3RB Low (0)	1909.3	24	23.30	0	22.83	1	
		1880	24	23.43	0	22.28	1	
		1850.7	24	23.45	0	22.44	1	
	6RB (0)	1909.3	24	22.35	1	21.88	2	
		1880	24	22.36	1	21.57	2	
		1850.7	24	22.30	1	21.21	2	
	3 MHz	1RB High (14)	1908.5	24	23.41	0	22.05	1
			1880	24	23.59	0	22.40	1
			1851.5	24	23.38	0	22.42	1
		1RB Middle (7)	1908.5	24	23.41	0	22.44	1
			1880	24	23.25	0	22.35	1
			1851.5	24	23.42	0	22.72	1
1RB Low (0)		1908.5	24	23.63	0	22.82	1	
		1880	24	23.46	0	22.35	1	
		1851.5	24	23.49	0	22.51	1	
8RB High (7)		1908.5	24	22.63	1	21.48	2	
		1880	24	22.45	1	21.34	2	
		1851.5	24	22.47	1	21.68	2	
8RB Middle (4)		1908.5	24	22.42	1	21.64	2	
		1880	24	22.36	1	21.38	2	
		1851.5	24	22.59	1	21.49	2	
8RB Low (0)		1908.5	24	22.49	1	21.59	2	
		1880	24	22.32	1	21.55	2	
		1851.5	24	22.31	1	21.41	2	
15RB (0)		1908.5	24	22.50	1	21.43	2	
		1880	24	22.31	1	21.30	2	

		1851.5	24	22.31	1	21.35	2
5 MHz	1RB High (24)	1907.5	24	23.28	0	21.91	1
		1880	24	23.22	0	21.87	1
		1852.5	24	23.29	0	22.04	1
	1RB Middle (12)	1907.5	24	23.74	0	22.04	1
		1880	24	23.49	0	21.88	1
		1852.5	24	23.51	0	22.26	1
	1RB Low (0)	1907.5	24	23.33	0	21.86	1
		1880	24	23.36	0	22.32	1
		1852.5	24	23.45	0	22.01	1
	12RB High (13)	1907.5	24	22.43	1	21.43	2
		1880	24	22.36	1	21.29	2
		1852.5	24	22.45	1	21.44	2
	12RB Middle (6)	1907.5	24	22.47	1	21.63	2
		1880	24	22.37	1	21.31	2
		1852.5	24	22.42	1	21.49	2
	12RB Low (0)	1907.5	24	22.45	1	21.61	2
		1880	24	22.29	1	21.31	2
		1852.5	24	22.40	1	21.47	2
	25RB (0)	1907.5	24	22.39	1	21.35	2
		1880	24	22.36	1	21.43	2
		1852.5	24	22.38	1	21.38	2
10 MHz	1RB High (49)	1905	24	23.14	0	21.99	1
		1880	24	23.23	0	22.27	1
		1855	24	23.48	0	22.30	1
	1RB Middle (24)	1905	24	23.41	0	22.21	1
		1880	24	23.70	0	22.53	1
		1855	24	23.42	0	22.65	1
	1RB Low (0)	1905	24	23.69	0	22.76	1
		1880	24	23.35	0	22.42	1
		1855	24	23.50	0	22.46	1
	25RB High (25)	1905	24	22.39	1	21.50	2
		1880	24	22.37	1	21.40	2
		1855	24	22.47	1	21.38	2
	25RB Middle (12)	1905	24	22.33	1	21.65	2
		1880	24	22.38	1	21.55	2
		1855	24	22.47	1	21.31	2
	25RB Low (0)	1905	24	22.46	1	21.57	2
		1880	24	22.25	1	21.26	2
		1855	24	22.32	1	21.34	2
	50RB (0)	1905	24	22.32	1	21.36	2
		1880	24	22.36	1	21.30	2
		1855	24	22.35	1	21.43	2
15 MHz	1RB High (74)	1902.5	24	23.45	0	22.51	1
		1880	24	23.38	0	22.24	1
		1857.5	24	23.35	0	22.71	1
	1RB Middle (37)	1902.5	24	23.73	0	22.49	1
		1880	24	23.67	0	22.29	1

	1RB Low (0)	1857.5	24	23.63	0	22.70	1	
		1902.5	24	23.65	0	22.19	1	
		1880	24	23.40	0	22.59	1	
	36RB High (38)	1857.5	24	23.22	0	22.66	1	
		1902.5	24	22.47	1	21.40	2	
		1880	24	22.47	1	21.38	2	
	36RB Middle (19)	1857.5	24	22.46	1	21.42	2	
		1902.5	24	22.57	1	21.69	2	
		1880	24	22.39	1	21.45	2	
	36RB Low (0)	1857.5	24	22.43	1	21.41	2	
		1902.5	24	22.51	1	21.59	2	
		1880	24	22.44	1	21.39	2	
	75RB (0)	1857.5	24	22.30	1	21.38	2	
		1902.5	24	22.44	1	21.46	2	
		1880	24	22.45	1	21.36	2	
20 MHz	1RB High (99)	1857.5	24	22.38	1	21.39	2	
		1900	24	23.07	0	22.00	1	
		1880	24	23.19	0	22.49	1	
	1RB Middle (50)	1860	24	23.24	0	22.29	1	
		1900	24	23.51	0	22.75	1	
		1880	24	23.44	0	22.41	1	
	1RB Low (0)	1860	24	23.82	0	22.43	1	
		1900	24	23.38	0	22.29	1	
		1880	24	23.24	0	22.09	1	
	50RB High (50)	1860	24	23.22	0	22.08	1	
		1900	24	22.44	1	21.40	2	
		1880	24	22.49	1	21.54	2	
	50RB Middle (25)	1860	24	22.38	1	21.28	2	
		1900	24	22.47	1	21.33	2	
		1880	24	22.39	1	21.54	2	
	50RB Low (0)	1860	24	22.40	1	21.54	2	
		1900	24	22.41	1	21.23	2	
		1880	24	22.29	1	21.58	2	
	100RB (0)	1860	24	22.31	1	21.30	2	
		1900	24	22.42	1	21.39	2	
		1880	24	22.29	1	21.39	2	
			1860	24	22.31	1	21.45	2

Band 4								
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Max. Target Power (dBm)	QPSK		16QAM		
	RB offset (Start RB)			Actual output power (dBm)	MPR	Actual output power (dBm)	MPR	
1.4 MHz	1RB High (5)	1754.3	24	23.51	0	22.37	1	
		1732.5	24	23.50	0	22.51	1	
		1710.7	24	23.35	0	22.57	1	
	1RB Middle (3)	1754.3	24	23.73	0	22.44	1	
		1732.5	24	23.40	0	22.42	1	
		1710.7	24	23.38	0	22.25	1	
	1RB Low (0)	1754.3	24	23.41	0	22.37	1	
		1732.5	24	23.36	0	22.53	1	
		1710.7	24	23.52	0	22.55	1	
	3RB High (3)	1754.3	24	23.45	0	22.61	1	
		1732.5	24	23.44	0	22.34	1	
		1710.7	24	23.56	0	22.28	1	
	3RB Middle (1)	1754.3	24	23.47	0	22.66	1	
		1732.5	24	23.53	0	22.46	1	
		1710.7	24	23.34	0	22.40	1	
	3RB Low (0)	1754.3	24	23.41	0	22.74	1	
		1732.5	24	23.40	0	22.42	1	
		1710.7	24	23.30	0	22.44	1	
	6RB (0)	1754.3	24	22.38	1	21.74	2	
		1732.5	24	22.48	1	21.57	2	
		1710.7	24	22.35	1	21.33	2	
	3 MHz	1RB High (14)	1753.5	24	23.21	0	22.45	1
			1732.5	24	23.39	0	22.46	1
			1711.5	24	23.43	0	22.02	1
		1RB Middle (7)	1753.5	24	23.40	0	22.40	1
			1732.5	24	23.53	0	22.75	1
			1711.5	24	23.37	0	22.76	1
1RB Low (0)		1753.5	24	23.40	0	22.39	1	
		1732.5	24	23.46	0	22.62	1	
		1711.5	24	23.24	0	22.36	1	
8RB High (7)		1753.5	24	22.52	1	21.43	2	
		1732.5	24	22.31	1	21.65	2	
		1711.5	24	22.37	1	21.36	2	
8RB Middle (4)		1753.5	24	22.53	1	21.19	2	
		1732.5	24	22.38	1	21.51	2	
		1711.5	24	22.46	1	21.46	2	
8RB Low (0)		1753.5	24	22.39	1	21.05	2	
		1732.5	24	22.36	1	21.50	2	
		1711.5	24	22.34	1	21.49	2	
15RB (0)		1753.5	24	22.42	1	21.28	2	
		1732.5	24	22.45	1	21.39	2	
		1711.5	24	22.36	1	21.42	2	

5 MHz	1RB High (24)	1752.5	24	23.56	0	22.52	1	
		1732.5	24	23.21	0	22.38	1	
		1712.5	24	23.22	0	22.14	1	
	1RB Middle (12)	1752.5	24	23.52	0	22.16	1	
		1732.5	24	23.37	0	22.09	1	
		1712.5	24	23.22	0	22.21	1	
	1RB Low (0)	1752.5	24	23.40	0	21.95	1	
		1732.5	24	23.27	0	22.07	1	
		1712.5	24	23.11	0	21.97	1	
	12RB High (13)	1752.5	24	22.59	1	21.56	2	
		1732.5	24	22.38	1	21.29	2	
		1712.5	24	22.32	1	21.29	2	
	12RB Middle (6)	1752.5	24	22.49	1	21.45	2	
		1732.5	24	22.48	1	21.38	2	
		1712.5	24	22.42	1	21.38	2	
	12RB Low (0)	1752.5	24	22.42	1	21.38	2	
		1732.5	24	22.44	1	21.34	2	
		1712.5	24	22.44	1	21.42	2	
	25RB (0)	1752.5	24	22.48	1	21.62	2	
		1732.5	24	22.34	1	21.48	2	
		1712.5	24	22.39	1	21.36	2	
	10 MHz	1RB High (49)	1750	24	23.59	0	22.95	1
			1732.5	24	23.41	0	22.76	1
			1715	24	23.33	0	22.61	1
1RB Middle (24)		1750	24	23.66	0	22.77	1	
		1732.5	24	23.51	0	22.40	1	
		1715	24	23.32	0	22.42	1	
1RB Low (0)		1750	24	23.33	0	22.48	1	
		1732.5	24	23.35	0	22.01	1	
		1715	24	23.01	0	22.37	1	
25RB High (25)		1750	24	22.43	1	21.48	2	
		1732.5	24	22.37	1	21.46	2	
		1715	24	22.41	1	21.57	2	
25RB Middle (12)		1750	24	22.40	1	21.53	2	
		1732.5	24	22.41	1	21.58	2	
		1715	24	22.45	1	21.52	2	
25RB Low (0)		1750	24	22.30	1	21.30	2	
		1732.5	24	22.34	1	21.33	2	
		1715	24	22.36	1	21.41	2	
50RB (0)		1750	24	22.42	1	21.31	2	
		1732.5	24	22.33	1	21.40	2	
		1715	24	22.45	1	21.44	2	
15 MHz		1RB High (74)	1747.5	24	23.52	0	22.80	1
			1732.5	24	23.13	0	22.44	1
			1717.5	24	23.30	0	22.54	1
		1RB Middle (37)	1747.5	24	23.44	0	22.78	1
			1732.5	24	23.49	0	22.55	1
			1717.5	24	23.30	0	22.89	1

	1RB Low (0)	1747.5	24	23.31	0	22.56	1
		1732.5	24	23.23	0	22.61	1
		1717.5	24	23.22	0	22.81	1
	36RB High (38)	1747.5	24	22.34	1	21.27	2
		1732.5	24	22.43	1	21.41	2
		1717.5	24	22.46	1	21.30	2
	36RB Middle (19)	1747.5	24	22.37	1	21.32	2
		1732.5	24	22.49	1	21.51	2
		1717.5	24	22.39	1	21.33	2
	36RB Low (0)	1747.5	24	22.17	1	21.20	2
		1732.5	24	22.40	1	21.53	2
		1717.5	24	22.37	1	21.28	2
	75RB (0)	1747.5	24	22.30	1	21.37	2
		1732.5	24	22.35	1	21.40	2
		1717.5	24	22.44	1	21.43	2
20 MHz	1RB High (99)	1745	24	23.74	0	22.68	1
		1732.5	24	23.46	0	22.30	1
		1720	24	23.48	0	22.39	1
	1RB Middle (50)	1745	24	23.48	0	22.52	1
		1732.5	24	23.67	0	22.31	1
		1720	24	23.54	0	22.43	1
	1RB Low (0)	1745	24	23.50	0	22.39	1
		1732.5	24	23.40	0	22.03	1
		1720	24	23.11	0	22.07	1
	50RB High (50)	1745	24	22.43	1	21.38	2
		1732.5	24	22.48	1	21.44	2
		1720	24	22.53	1	21.46	2
	50RB Middle (25)	1745	24	22.38	1	21.28	2
		1732.5	24	22.51	1	21.48	2
		1720	24	22.47	1	21.48	2
	50RB Low (0)	1745	24	22.45	1	21.37	2
		1732.5	24	22.48	1	21.42	2
		1720	24	22.59	1	21.33	2
	100RB (0)	1745	24	22.44	1	21.37	2
		1732.5	24	22.46	1	21.37	2
		1720	24	22.51	1	21.64	2

Band 5								
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Max. Target Power (dBm)	QPSK		16QAM		
	RB offset (Start RB)			Actual output power (dBm)	MPR	Actual output power (dBm)	MPR	
1.4 MHz	1RB High (5)	848.3	24	23.79	0	22.79	1	
		836.5	24	23.80	0	22.87	1	
		824.7	24	23.78	0	22.91	1	
	1RB Middle (3)	848.3	24	23.90	0	22.57	1	
		836.5	24	23.74	0	22.49	1	
		824.7	24	23.98	0	22.78	1	
	1RB Low (0)	848.3	24	23.85	0	22.68	1	
		836.5	24	23.80	0	22.97	1	
		824.7	24	23.83	0	22.89	1	
	3RB High (3)	848.3	24	23.86	0	22.56	1	
		836.5	24	23.86	0	22.84	1	
		824.7	24	23.97	0	22.83	1	
	3RB Middle (1)	848.3	24	23.89	0	22.61	1	
		836.5	24	23.81	0	22.80	1	
		824.7	24	23.98	0	22.85	1	
	3RB Low (0)	848.3	24	23.83	0	22.59	1	
		836.5	24	23.80	0	22.82	1	
		824.7	24	23.92	0	22.88	1	
	6RB (0)	848.3	24	22.86	1	21.55	2	
		836.5	24	22.78	1	21.71	2	
		824.7	24	22.94	1	21.90	2	
	3 MHz	1RB High (14)	847.5	24	23.65	0	22.74	1
			836.5	24	23.94	0	22.95	1
			825.5	24	23.78	0	22.62	1
1RB Middle (7)		847.5	24	23.62	0	22.86	1	
		836.5	24	23.97	0	22.95	1	
		825.5	24	23.96	0	22.89	1	
1RB Low (0)		847.5	24	23.43	0	22.60	1	
		836.5	24	23.80	0	22.96	1	
		825.5	24	23.85	0	22.63	1	
8RB High (7)		847.5	24	22.72	1	21.78	2	
		836.5	24	22.85	1	21.92	2	
		825.5	24	22.92	1	21.89	2	
8RB Middle (4)		847.5	24	22.73	1	21.84	2	
		836.5	24	22.76	1	21.95	2	
		825.5	24	22.84	1	21.93	2	
8RB Low (0)		847.5	24	22.77	1	21.70	2	
		836.5	24	22.85	1	21.90	2	
		825.5	24	22.91	1	21.95	2	
15RB (0)		847.5	24	22.66	1	21.77	2	
		836.5	24	22.92	1	21.99	2	
		825.5	24	22.88	1	21.91	2	

5 MHz	1RB High (24)	846.5	24	23.67	0	22.24	1	
		836.5	24	23.51	0	22.24	1	
		826.5	24	23.68	0	22.49	1	
	1RB Middle (12)	846.5	24	23.84	0	22.36	1	
		836.5	24	23.88	0	22.38	1	
		826.5	24	23.87	0	22.63	1	
	1RB Low (0)	846.5	24	23.92	0	22.42	1	
		836.5	24	23.89	0	22.45	1	
		826.5	24	23.83	0	22.71	1	
	12RB High (13)	846.5	24	22.76	1	21.60	2	
		836.5	24	22.85	1	21.74	2	
		826.5	24	22.84	1	21.72	2	
	12RB Middle (6)	846.5	24	22.73	1	21.51	2	
		836.5	24	22.82	1	21.95	2	
		826.5	24	22.88	1	21.81	2	
	12RB Low (0)	846.5	24	22.65	1	21.66	2	
		836.5	24	22.83	1	21.94	2	
		826.5	24	22.96	1	21.90	2	
	25RB (0)	846.5	24	22.70	1	21.67	2	
		836.5	24	22.81	1	21.92	2	
		826.5	24	22.83	1	21.69	2	
	10 MHz	1RB High (49)	844.0	24	23.70	0	22.76	1
			836.5	24	23.83	0	22.82	1
			829.0	24	23.77	0	22.73	1
1RB Middle (24)		844.0	24	23.85	0	22.90	1	
		836.5	24	23.94	0	22.94	1	
		829.0	24	23.98	0	22.96	1	
1RB Low (0)		844.0	24	23.85	0	22.73	1	
		836.5	24	23.79	0	22.71	1	
		829.0	24	23.89	0	22.99	1	
25RB High (25)		844.0	24	22.60	1	21.68	2	
		836.5	24	22.88	1	21.88	2	
		829.0	24	22.87	1	21.91	2	
25RB Middle (12)		844.0	24	22.77	1	21.76	2	
		836.5	24	22.82	1	21.88	2	
		829.0	24	22.89	1	21.96	2	
25RB Low (0)		844.0	24	22.80	1	21.81	2	
		836.5	24	22.76	1	21.65	2	
		829.0	24	22.89	1	21.89	2	
50RB (0)		844.0	24	22.64	1	21.66	2	
		836.5	24	22.83	1	21.78	2	
		829.0	24	22.79	1	21.90	2	

Band 12								
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Max. Target Power (dBm)	QPSK		16QAM		
	RB offset (Start RB)			Actual output power (dBm)	MPR	Actual output power (dBm)	MPR	
1.4 MHz	1RB High (5)	715.3	24	23.93	0	22.97	1	
		707.5	24	23.83	0	22.81	1	
		699.7	24	23.91	0	22.87	1	
	1RB Middle (3)	715.3	24	23.98	0	22.99	1	
		707.5	24	23.90	0	22.96	1	
		699.7	24	23.95	0	22.93	1	
	1RB Low (0)	715.3	24	23.90	0	22.70	1	
		707.5	24	23.85	0	22.95	1	
		699.7	24	23.91	0	22.92	1	
	3RB High (3)	715.3	24	23.95	0	22.96	1	
		707.5	24	23.92	0	22.91	1	
		699.7	24	23.94	0	22.94	1	
	3RB Middle (1)	715.3	24	23.94	0	22.90	1	
		707.5	24	23.90	0	22.97	1	
		699.7	24	23.92	0	22.99	1	
	3RB Low (0)	715.3	24	23.89	0	22.97	1	
		707.5	24	23.92	0	22.93	1	
		699.7	24	23.97	0	22.98	1	
	6RB (0)	715.3	24	22.93	1	21.92	2	
		707.5	24	22.96	1	21.93	2	
		699.7	24	22.94	1	21.97	2	
	3 MHz	1RB High (14)	714.5	24	23.81	0	22.98	1
			707.5	24	23.84	0	22.96	1
			700.5	24	23.95	0	22.93	1
1RB Middle (7)		714.5	24	23.79	0	22.91	1	
		707.5	24	23.96	0	22.92	1	
		700.5	24	23.95	0	22.82	1	
1RB Low (0)		714.5	24	23.89	0	22.94	1	
		707.5	24	23.86	0	22.97	1	
		700.5	24	23.95	0	22.96	1	
8RB High (7)		714.5	24	22.89	1	21.96	2	
		707.5	24	22.93	1	21.93	2	
		700.5	24	22.73	1	21.76	2	
8RB Middle (4)		714.5	24	22.95	1	21.96	2	
		707.5	24	22.96	1	21.96	2	
		700.5	24	22.98	1	21.98	2	
8RB Low (0)		714.5	24	22.93	1	21.95	2	
		707.5	24	22.91	1	21.94	2	
		700.5	24	22.93	1	21.97	2	
15RB (0)		714.5	24	22.88	1	21.98	2	
		707.5	24	22.99	1	21.96	2	
		700.5	24	22.95	1	21.95	2	

5 MHz	1RB High (24)	713.5	24	23.81	0	22.88	1	
		707.5	24	23.78	0	22.89	1	
		701.5	24	23.76	0	22.22	1	
	1RB Middle (12)	713.5	24	23.91	0	22.93	1	
		707.5	24	23.93	0	22.94	1	
		701.5	24	23.91	0	22.64	1	
	1RB Low (0)	713.5	24	23.86	0	22.64	1	
		707.5	24	23.69	0	22.68	1	
		701.5	24	23.93	0	22.95	1	
	12RB High (13)	713.5	24	22.81	1	21.91	2	
		707.5	24	22.92	1	21.93	2	
		701.5	24	22.80	1	21.73	2	
	12RB Middle (6)	713.5	24	22.93	1	21.96	2	
		707.5	24	22.92	1	21.94	2	
		701.5	24	22.93	1	21.94	2	
	12RB Low (0)	713.5	24	22.86	1	21.98	2	
		707.5	24	22.91	1	21.92	2	
		701.5	24	22.95	1	21.95	2	
	25RB (0)	713.5	24	22.88	1	21.94	2	
		707.5	24	22.97	1	21.96	2	
		701.5	24	22.88	1	21.92	2	
	10 MHz	1RB High (49)	711	24	23.72	0	22.91	1
			707.5	24	23.71	0	22.94	1
			704	24	23.88	0	22.90	1
1RB Middle (24)		711	24	23.95	0	22.98	1	
		707.5	24	23.95	0	22.96	1	
		704	24	23.98	0	22.93	1	
1RB Low (0)		711	24	23.80	0	22.56	1	
		707.5	24	23.77	0	22.78	1	
		704	24	23.93	0	22.94	1	
25RB High (25)		711	24	22.87	1	21.96	2	
		707.5	24	22.83	1	21.85	2	
		704	24	22.81	1	21.82	2	
25RB Middle (12)		711	24	22.93	1	21.91	2	
		707.5	24	22.91	1	21.93	2	
		704	24	22.92	1	21.92	2	
25RB Low (0)		711	24	22.89	1	21.98	2	
		707.5	24	22.84	1	21.91	2	
		704	24	22.97	1	21.82	2	
50RB (0)		711	24	22.87	1	21.96	2	
		707.5	24	22.97	1	21.94	2	
		704	24	22.92	1	21.86	2	

Band 14							
Bandwidth (MHz)	RB allocation	Frequency (MHz)	Max. Target Power (dBm)	QPSK		16QAM	
	RB offset (Start RB)			Actual output power (dBm)	MPR	Actual output power (dBm)	MPR
5 MHz	1RB High (24)	795.5	23	22.84	0	21.50	1
		793	23	22.44	0	21.38	1
		790.5	23	22.79	0	21.72	1
	1RB Middle (12)	795.5	23	22.92	0	21.86	1
		793	23	22.99	0	21.55	1
		790.5	23	22.97	0	21.51	1
	1RB Low (0)	795.5	23	22.87	0	21.34	1
		793	23	22.53	0	21.29	1
		790.5	23	22.80	0	21.09	1
	12RB High (13)	795.5	23	21.79	1	20.97	2
		793	23	21.88	1	20.93	2
		790.5	23	21.99	1	20.77	2
	12RB Middle (6)	795.5	23	21.87	1	20.97	2
		793	23	21.93	1	20.91	2
		790.5	23	22.02	1	20.81	2
	12RB Low (0)	795.5	23	21.87	1	20.97	2
		793	23	22.03	1	20.76	2
		790.5	23	21.93	1	20.76	2
	25RB (0)	795.5	23	21.87	1	21.01	2
		793	23	21.97	1	21.05	2
		790.5	23	21.99	1	20.87	2
10 MHz	1RB High (49)	793	23	22.91	0	21.28	1
	1RB Middle (24)	793	23	22.99	0	21.71	1
	1RB Low (0)	793	23	22.81	0	21.55	1
	25RB High (25)	793	23	21.79	1	20.74	2
	25RB Middle (12)	793	23	21.86	1	20.92	2
	25RB Low (0)	793	23	21.99	1	21.02	2
	50RB (0)	793	23	21.79	1	20.73	2

11.4 Wi-Fi and BT Measurement result

For the Bluetooth, the maximum output power is 8.28dBm and the maximum tune up is 8.5dBm.

The average conducted power for Wi-Fi is as following:

802.11b (dBm)

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
11	18.44	18.40	18.37	18.36
6	18.04			
1	18.19			
Tune up	19	19	19	19

802.11g (dBm)

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
11	15.21	15.19	15.19	15.17	15.13	15.10	15.07	15.05
6	14.79							
1	14.68							
Tune up	16	16	16	16	16	16	15.5	15.5

802.11n (dBm) - HT20 (2.4G)

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
11	12.09	12.07	12.06	12.02	12.00	11.97	11.95	11.93
6	11.82	/	/	/	/	/	/	/
1	11.50	/	/	/	/	/	/	/
Tune up	13	13	13	13	12.5	12.5	12.5	12.5

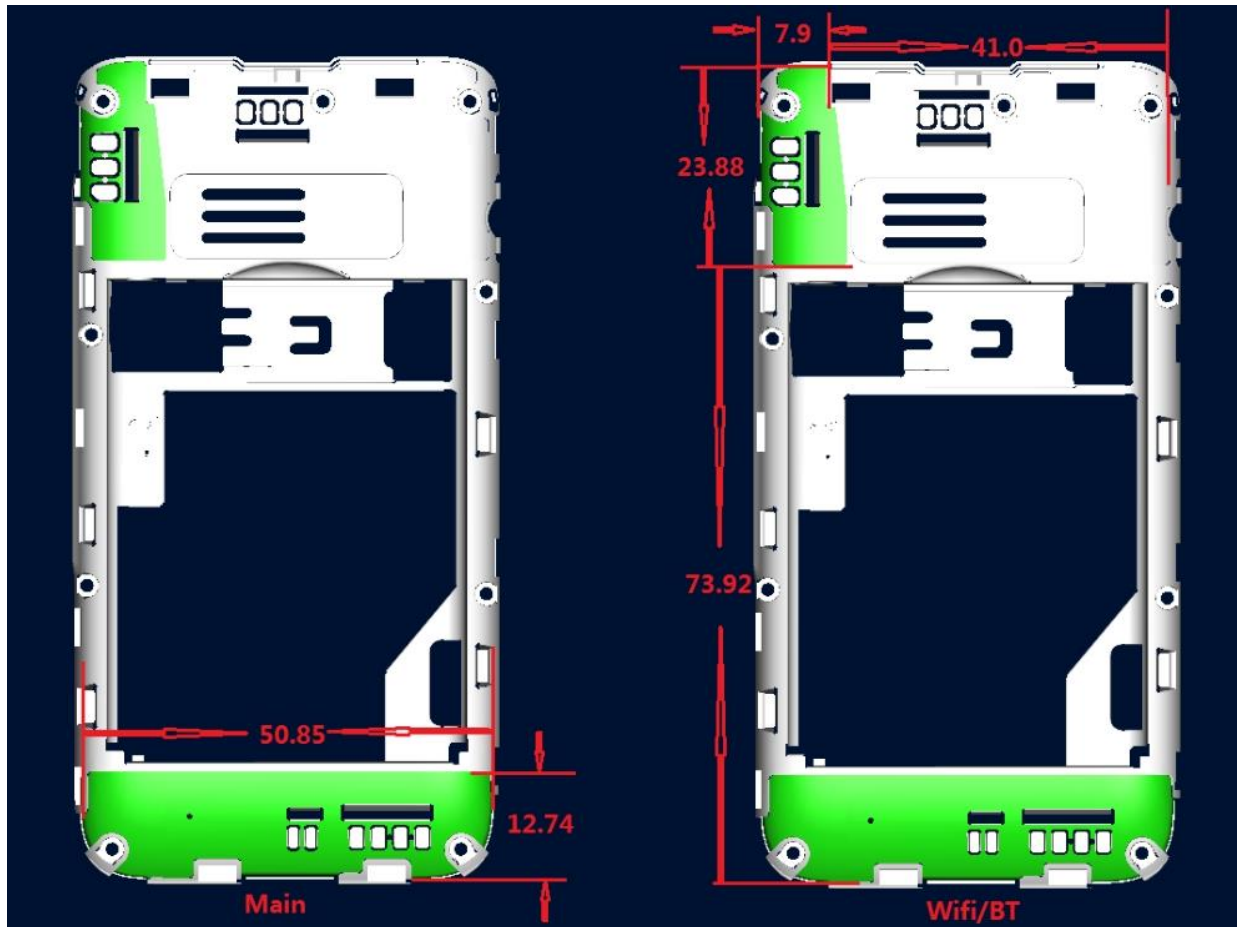
12 Simultaneous TX SAR Considerations

12.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

SAR measurement positions							
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge	Rear unfold
Main antenna	Yes	Yes	No	No	No	No	Yes
WLAN	Yes	Yes	No	No	No	No	Yes

12.4 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \left[\sqrt{f(\text{GHz})} \right] \leq 3.0 \text{ for 1-g SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Table 12.1: Standalone SAR test exclusion considerations

Band/Mode	F(GHz)	Position	SAR test exclusion threshold(mW)	RF output power		SAR test exclusion
				dBm	mW	
Bluetooth	2.441	Head	9.60	8.5	7.1	Yes
		Body	19.20	8.5	7.1	Yes
2.4GHz WLAN	2.45	Head	9.58	19	79.4	No
		Body	19.17	19	79.4	No

13 Evaluation of Simultaneous

Table 13.1: The sum of reported SAR values for main antenna and WiFi

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Left hand, Touch cheek	0.63	0.29	0.89
Highest reported SAR value for Body	Rear	1.04	0.21	1.25

Table 13.2: The sum of reported SAR values for main antenna and BT

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch cheek	0.63	0.29 ^[1]	0.89
Maximum reported SAR value for Body	Rear	1.04	0.15 ^[1]	1.19

[1] - Estimated SAR for Bluetooth (see the table 13.3)

Table 13.3: Estimated SAR for Bluetooth

Mode/Band	F (GHz)	Position	Distance (mm)	Upper limit of power *		Estimated _{1g} (W/kg)
				dBm	mW	
Bluetooth	2.441	Head	5	8.5	7.08	0.29
Bluetooth	2.441	Body	10	8.5	7.08	0.15

* - Maximum possible output power declared by manufacturer

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$ for test separation distances $\leq 50 \text{ mm}$;

where $x = 7.5$ for 1-g SAR.

When the minimum test separation distance is $< 5 \text{ mm}$, a distance of 5 mm is applied to determine SAR test exclusion

Conclusion:

According to the above tables, the sum of reported SAR values is $< 1.6 \text{ W/kg}$. So the simultaneous transmission SAR with volume scans is not required.

14 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom. The distance is 15 mm and just applied to the condition of body worn accessory.

It is performed for all SAR measurements with area scan based 1-g SAR estimation (Fast SAR). A zoom scan measurement is added when the estimated 1-gSAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where P_{Target} is the power of manufacturing upper limit;

P_{Measured} is the measured power in chapter 11.

Table 14.1: Duty Cycle

Mode	Duty Cycle
Speech for GSM850/1900	1:8.3
GPRS&EGPRS for GSM850/1900	1:2.67
WCDMA<E FDD	1:1
LTE TDD	1:1.58

14.1 SAR results for Fast SAR

Table 14.1-1: SAR Values (WCDMA 850 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
4183	836.4	Left	Touch	/	23.98	24	0.268	0.27	0.426	0.43	0.06
4183	836.4	Left	Tilt	/	23.98	24	0.153	0.15	0.219	0.22	-0.01
4233	846.6	Right	Touch	/	23.95	24	0.335	0.34	0.527	0.53	0.07
4183	836.4	Right	Touch	Fig.1	23.98	24	0.384	0.39	0.604	0.61	-0.19
4132	826.4	Right	Touch	/	23.88	24	0.304	0.31	0.485	0.50	0.10
4183	836.4	Right	Tilt	/	23.98	24	0.175	0.18	0.249	0.25	0.04

Table 14.1-2: SAR Values (WCDMA 850 MHz Band - Body)

Frequency		Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C										
4183	836.4	Front	/	23.98	24	0.163	0.16	0.208	0.21	0.12
4233	846.6	Rear	Fig.2	23.95	24	0.379	0.38	0.515	0.52	0.09
4183	836.4	Rear	/	23.98	24	0.321	0.32	0.418	0.42	0.06
4132	826.4	Rear	/	23.88	24	0.292	0.30	0.383	0.39	0.11
4183	836.4	Rear unfold	/	23.98	24	0.188	0.19	0.253	0.25	0.05

Note: The distance between the EUT and the phantom bottom is 15mm.

Table 14.1-3: SAR Values (WCDMA 1700 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
1513	1752.6	Left	Touch	Fig.3	22.78	23	0.127	0.13	0.192	0.20	-0.06
1412	1732.4	Left	Touch	/	22.89	23	0.123	0.13	0.191	0.20	0.07
1312	1712.4	Left	Touch	/	22.82	23	0.119	0.12	0.180	0.19	-0.01
1412	1732.4	Left	Tilt	/	22.89	23	0.035	0.04	0.051	0.05	-0.09
1412	1732.4	Right	Touch	/	22.89	23	0.090	0.09	0.143	0.15	0.10
1412	1732.4	Right	Tilt	/	22.89	23	0.026	0.03	0.038	0.04	-0.03

Table 14.1-4: SAR Values (WCDMA 1700 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C										
1412	1732.4	Front	/	22.89	23	0.160	0.16	0.245	0.25	0.05
1513	1752.6	Rear	Fig.4	22.78	23	0.581	0.61	0.979	1.03	-0.14
1412	1732.4	Rear	/	22.89	23	0.522	0.54	0.863	0.89	-0.02
1312	1712.4	Rear	/	22.82	23	0.504	0.53	0.848	0.88	0.09
1412	1732.4	Rear unfold	/	22.89	23	0.357	0.37	0.575	0.59	0.13

Note: The distance between the EUT and the phantom bottom is 15mm.

Table 14.1-5: SAR Values (WCDMA 1900 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
9538	1907.6	Left	Touch	Fig.5	22.88	23	0.175	0.18	0.271	0.28	-0.08
9400	1880	Left	Touch	/	22.75	23	0.163	0.17	0.243	0.26	-0.08
9262	1852.4	Left	Touch	/	22.92	23	0.168	0.17	0.253	0.26	-0.10
9400	1880	Left	Tilt	/	22.75	23	0.058	0.06	0.083	0.09	0.04
9400	1880	Right	Touch	/	22.75	23	0.072	0.08	0.120	0.13	0.02
9400	1880	Right	Tilt	/	22.75	23	0.025	0.03	0.038	0.04	0.11

Table 14.1-6: SAR Values (WCDMA 1900 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C										
9400	1880	Front	/	22.75	23	0.195	0.21	0.310	0.33	0.05
9538	1907.6	Rear	/	22.88	23	0.415	0.43	0.697	0.72	-0.16
9400	1880	Rear	/	22.75	23	0.513	0.54	0.849	0.90	0.13
9262	1852.4	Rear	Fig.6	22.92	23	0.541	0.55	0.902	0.92	-0.10
9400	1880	Rear unfold	/	22.75	23	0.323	0.34	0.502	0.53	0.08

Note: The distance between the EUT and the phantom bottom is 15mm.

Table 14.1-7: SAR Values (LTE Band2 - Head)

Frequency		Ambient Temperature: 22.9°C					Liquid Temperature: 22.5°C					
Ch.	MHz	Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
18700	1860	1RB_Mid	Left	Touch	Fig.7	23.82	24	0.268	0.28	0.402	0.42	0.01
18700	1860	1RB_Mid	Left	Tilt	/	23.82	24	0.069	0.07	0.100	0.10	0.07
18700	1860	1RB_Mid	Right	Touch	/	23.82	24	0.079	0.08	0.133	0.14	-0.09
18700	1860	1RB_Mid	Right	Tilt	/	23.82	24	0.046	0.05	0.066	0.07	0.13
18900	1880	50RB_High	Left	Touch	/	22.49	23	0.210	0.24	0.312	0.35	0.05
18900	1880	50RB_High	Left	Tilt	/	22.49	23	0.052	0.06	0.080	0.09	-0.01
18900	1880	50RB_High	Right	Touch	/	22.49	23	0.071	0.08	0.119	0.13	-0.08
18900	1880	50RB_High	Right	Tilt	/	22.49	23	0.031	0.03	0.046	0.05	0.05

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-8: SAR Values (LTE Band2 - Body)

Frequency		Ambient Temperature: 22.9°C					Liquid Temperature: 22.5°C					
Ch.	MHz	Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)	
18700	1860	1RB_Mid	Front	/	23.82	24	0.225	0.23	0.357	0.37	0.09	
19100	1900	1RB_Mid	Rear	/	23.51	24	0.530	0.59	0.897	1.00	0.13	
18900	1880	1RB_Mid	Rear	/	23.44	24	0.518	0.59	0.871	0.99	-0.12	
18700	1860	1RB_Mid	Rear	Fig.8	23.82	24	0.621	0.65	1.030	1.07	-0.05	
19100	1900	1RB_Mid	Rear	/	23.51	24	0.539	0.60	0.844	0.94	0.15	
18900	1880	50RB_High	Rear	/	23.44	24	0.559	0.64	0.867	0.99	0.07	
18700	1860	50RB_High	Rear	/	23.82	24	0.640	0.67	0.994	1.04	0.06	
18900	1880	50RB_High	Front	/	22.49	23	0.149	0.17	0.235	0.26	0.11	
18900	1880	50RB_High	Rear	/	22.49	23	0.425	0.48	0.708	0.80	0.03	
18900	1880	50RB_High	Rear unfold	/	22.49	23	0.435	0.49	0.674	0.76	-0.16	
19100	1900	100RB	Rear	/	22.42	23	0.385	0.44	0.653	0.75	0.08	

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-9: SAR Values (LTE Band4 - Head)

Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20300	1745	1RB_High	Left	Touch	Fig.9	23.74	24	0.186	0.20	0.280	0.30	0.08
20300	1745	1RB_High	Left	Tilt	/	23.74	24	0.084	0.09	0.117	0.12	0.01
20300	1745	1RB_High	Right	Touch	/	23.74	24	0.166	0.18	0.241	0.26	0.13
20300	1745	1RB_High	Right	Tilt	/	23.74	24	0.074	0.08	0.097	0.10	-0.09
20025	1720	50RB_Low	Left	Touch	/	22.59	23	0.155	0.17	0.222	0.24	-0.04
20025	1720	50RB_Low	Left	Tilt	/	22.59	23	0.059	0.06	0.081	0.09	0.02
20025	1720	50RB_Low	Right	Touch	/	22.59	23	0.114	0.13	0.171	0.19	0.05
20025	1720	50RB_Low	Right	Tilt	/	22.59	23	0.058	0.06	0.079	0.09	-0.01

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-10: SAR Values (LTE Band4 - Body)

Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
20300	1745	1RB_High	Front	/	23.74	24	0.151	0.16	0.236	0.25	0.09
20300	1745	1RB_High	Rear	Fig.10	23.74	24	0.588	0.62	0.989	1.05	-0.04
20175	1732.5	1RB_High	Rear	/	23.46	24	0.555	0.63	0.935	1.06	0.02
20050	1720	1RB_High	Rear	/	23.48	24	0.528	0.60	0.887	1.00	0.11
20300	1745	1RB_High	Rear	/	23.74	24	0.438	0.47	0.700	0.74	0.14
20175	1732.5	1RB_High	Rear	/	23.46	24	0.402	0.46	0.631	0.71	0.09
20050	1720	1RB_High	Rear	/	23.48	24	0.379	0.43	0.589	0.66	0.14
20025	1720	50RB_Low	Front	/	22.59	23	0.123	0.14	0.196	0.22	0.06
20300	1745	50RB_Low	Rear	/	22.45	23	0.460	0.52	0.778	0.88	0.15
20175	1732.5	50RB_Low	Rear	/	22.48	23	0.428	0.48	0.725	0.82	0.07
20025	1720	50RB_Low	Rear	/	22.59	23	0.418	0.46	0.706	0.78	0.02
20025	1720	50RB_Low	Rear unfold	/	22.59	23	0.294	0.32	0.454	0.50	0.13
20025	1720	100RB	Rear	/	22.51	23	0.408	0.46	0.691	0.77	0.09

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-11: SAR Values (LTE Band5 - Head)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20425	829	1RB_Mid	Left	Touch	/	23.98	24	0.398	0.40	0.628	0.63	-0.08
20425	829	1RB_Mid	Left	Tilt	/	23.98	24	0.204	0.20	0.299	0.30	0.03
20425	829	1RB_Mid	Right	Touch	Fig.11	23.98	24	0.393	0.39	0.632	0.63	0.16
20425	829	1RB_Mid	Right	Tilt	/	23.98	24	0.189	0.19	0.275	0.28	0.11
20425	829	25RB_Mid	Left	Touch	/	22.89	23	0.319	0.33	0.503	0.52	0.09
20425	829	25RB_Mid	Left	Tilt	/	22.89	23	0.156	0.16	0.227	0.23	-0.05
20425	829	25RB_Mid	Right	Touch	/	22.89	23	0.300	0.31	0.482	0.49	-0.03
20425	829	25RB_Mid	Right	Tilt	/	22.89	23	0.144	0.15	0.206	0.21	0.01

Note1: The LTE mode is QPSK_10MHz.

Table 14.1-12: SAR Values (LTE Band5 - Body)

Ambient Temperature: 22.9°C						Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
20425	829	1RB_Mid	Front	/	23.98	24	0.177	0.18	0.228	0.23	-0.12
20425	829	1RB_Mid	Rear	Fig.12	23.98	24	0.376	0.38	0.520	0.52	-0.07
20425	829	1RB_Mid	Rear	/	23.98	24	0.220	0.22	0.305	0.31	0.09
20425	829	25RB_Mid	Front	/	22.89	23	0.134	0.14	0.173	0.18	0.02
20425	829	25RB_Mid	Rear	/	22.89	23	0.287	0.29	0.393	0.40	0.07
20425	829	25RB_Mid	Rear unfold	/	22.89	23	0.172	0.18	0.239	0.25	0.15

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.1-13: SAR Values (LTE Band12 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C				Power Drift (dB)
Ch.	MHz					Conduct Power (dBm)	tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
23060	704	1RB_Mid	Left	Touch	/	23.98	24	0.183	0.18	0.329	0.33	-0.01
23060	704	1RB_Mid	Left	Tilt	/	23.98	24	0.057	0.06	0.078	0.08	0.03
23060	704	1RB_Mid	Right	Touch	Fig.13	23.98	24	0.240	0.24	0.380	0.38	0.02
23060	704	1RB_Mid	Right	Tilt	/	23.98	24	0.070	0.07	0.100	0.10	0.10
23130	711	25RB_Mid	Left	Touch	/	22.93	23	0.153	0.16	0.269	0.27	-0.06
23130	711	25RB_Mid	Left	Tilt	/	22.93	23	0.055	0.06	0.076	0.08	-0.12
23130	711	25RB_Mid	Right	Touch	/	22.93	23	0.180	0.18	0.280	0.28	0.09
23130	711	25RB_Mid	Right	Tilt	/	22.93	23	0.065	0.07	0.091	0.09	0.06

Note1: The LTE mode is QPSK_10MHz.

Table 14.1-14: SAR Values (LTE Band12 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C				Power Drift (dB)
Ch.	MHz				Conduct Power (dBm)	tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
23060	704	1RB_Mid	Front	/	23.98	24	0.066	0.07	0.088	0.09	0.15
23060	704	1RB_Mid	Rear	Fig.14	23.98	24	0.251	0.25	0.349	0.35	0.02
23060	704	1RB_Mid	Rear	/	23.98	24	0.240	0.24	0.339	0.34	0.11
23130	711	25RB_Low	Front	/	22.93	23	0.061	0.06	0.082	0.08	-0.06
23130	711	25RB_Low	Rear	/	22.93	23	0.193	0.20	0.268	0.27	0.13
23130	711	25RB_Low	Rear unfold	/	22.93	23	0.180	0.18	0.253	0.26	0.08

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_10MHz.